

PTO/SB/08B (08-03)

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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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Substitute for form 1449/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

**Complete if Known**

Application Number	10/772,153
Filing Date	02/04/2004
First Named Inventor	Chen
Art Unit	2123
Examiner Name	
Attorney Docket Number	SC-03-01

Sheet	1	of	1
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**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
3	1	Composite Catalog of Oil Field Equipment & Services, 1966-67, Vol 3. World Oil, Houston, TX	
3	2	Lecture Handouts, Rock Bit Design, Dull Grading, Selection and Application, Presented by Reed Rock Bit Company, 10/16/1980, Petex School of Drilling Engineering, University of Texas at Austin	
3	3	Longer Useful Lives for Roller Bits Cuts Sharply into Drilling Costs, South African Mining & Engineering Journal, 03/1979, Vol 90.	
3	4	Sworn Written Statement of Stephen Steinke and Exhibits SS-1 to SS-5, in the matter of European Patent App. No. 1 112 433 by Halliburton Energy Services Inc. and in the matter	
3		of an opposition thereto by Smith International Inc. Dated 10/13/2004.	
7	5	Notice of Opposition to a European Patent (Patent No. EP 1112433 B1, Application No. 99945375.6) dated 01/14/2004 and Annex.	

Examiner Signature		Date Considered	11/22/07
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<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

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Attorney Docket Number	SC-03-01
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FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T <sup>o</sup>
		Country Code <sup>2</sup> -Number <sup>4</sup> -Kind Code <sup>3</sup> (if known)				
	01	SU 1691497 A1	11-15-1991	Kurumov et al.		<input checked="" type="checkbox"/>
	02	SU 1654515 A1	07-06-1991	Togashov et al.		<input checked="" type="checkbox"/>
	03	SU 1768745 A1	10-15-1992	Karpukhin et al		<input type="checkbox"/>
	04	SU 1441051 A2	11-30-1998	Karpukhin et al		<input type="checkbox"/>
	05	EP 0384734 A1	08-29-1990	Amoco Corp.		<input type="checkbox"/>
	06	EP 0511547 A2	04-14-1992	Crockett		<input type="checkbox"/>

Date  
Considered

4/22/06

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## ELECTRONIC INFORMATION DISCLOSURE STATEMENT

Electronic Version v18  
Stylesheet Version v18.0

Title of Invention	Roller Cone Bit Design Using Multi-Objective Optimization																																																																																						
<p>Application Number: 10/772153</p> <p>Confirmation Number: 1857</p> <p>First Named Applicant: Shilin Chen</p> <p>Attorney Docket Number: SC-03-01</p> <p>Search string: ( 1209299 or 1263802 or 1394769 or 1847981 or 2117679 or 2122759 or 2132498 or 2165584 or 2230569 or 2496421 or 2728559 or 2851253 or 4056153 or 4187922 or 4334586 or 4343371 or 4393948 or 4408671 or 4427081 or 4611673 or 4627276 or 4657093 or 4815342 or 4848476 or 5137097 or 5197555 or 5216917 or 5224560 or 5305836 or 5311958 or 5318136 or 5341890 or 5370234 or 5372210 or 5394952 or 5415030 or 5416697 or 5421423 or 5704436 or 5715899 or 5730234 or 5767399 or 5794720 or 5812068 or 5813480 or 5813485 or 5839526 or 6002985 or 6012015 or 6021377 or 6044325 or 6057784 or 6095262 or 6109368 or 6213225 or 6241034 or 6401839 or 6412577 or 6527068 ).pn.</p> <p>US Patent Documents</p> <p>Note: Applicant is not required to submit a paper copy of cited US Patent Documents</p> <table border="1"><thead><tr><th>init</th><th>Cite.No.</th><th>Patent No.</th><th>Date</th><th>Patentee</th><th>Kind</th><th>Class</th><th>Subclass</th></tr></thead><tbody><tr><td>2</td><td>1</td><td>1209299</td><td>1916-12-19</td><td>Hughes</td><td></td><td></td><td></td></tr><tr><td>2</td><td>2</td><td>1263802</td><td>1918-04-23</td><td>Reed</td><td></td><td></td><td></td></tr><tr><td>2</td><td>3</td><td>1394769</td><td>1921-10-25</td><td>Sorensen</td><td></td><td></td><td></td></tr><tr><td>2</td><td>4</td><td>1847981</td><td>1932-03-01</td><td>C.E. Reed</td><td></td><td></td><td></td></tr><tr><td>2</td><td>5</td><td>2117679</td><td>1938-05-17</td><td>C.E. Reed</td><td></td><td></td><td></td></tr><tr><td>7</td><td>6</td><td>2122759</td><td>1938-07-05</td><td>F.L. Scott</td><td></td><td></td><td></td></tr><tr><td>3</td><td>7</td><td>2132498</td><td>1938-10-11</td><td>H.C. Smith</td><td></td><td></td><td></td></tr><tr><td>3</td><td>8</td><td>2165584</td><td>1939-07-11</td><td>H.C. Smith</td><td></td><td></td><td></td></tr><tr><td>7</td><td>9</td><td>2230569</td><td>1941-02-04</td><td>J.H. Howard et al.</td><td></td><td></td><td></td></tr></tbody></table>								init	Cite.No.	Patent No.	Date	Patentee	Kind	Class	Subclass	2	1	1209299	1916-12-19	Hughes				2	2	1263802	1918-04-23	Reed				2	3	1394769	1921-10-25	Sorensen				2	4	1847981	1932-03-01	C.E. Reed				2	5	2117679	1938-05-17	C.E. Reed				7	6	2122759	1938-07-05	F.L. Scott				3	7	2132498	1938-10-11	H.C. Smith				3	8	2165584	1939-07-11	H.C. Smith				7	9	2230569	1941-02-04	J.H. Howard et al.			
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2	10	2496421	1950-02-07	Stokes
2	11	2728559	1955-12-27	E.G. Boice et al.
2	12	2851253	1958-09-09	E.G. Boice et al.
2	13	4056153	1977-11-01	Miglierini
2	14	4187922	1980-02-12	Phelps
2	15	4334586	1982-06-01	Schumacher, Percy W.
4	16	4343371	1982-08-01	Baker et al.
4	17	4393948	1983-07-01	Fernandez, Carol
2	18	4408671	1983-10-11	Munson
2	19	4427081	1984-01-24	Crawford
2	20	4611673	1986-09-16	Childers et al.
2	21	4627276	1986-12-09	Burgess et al.
2	22	4657093	1987-04-14	Schumacher
2	23	4815342	1989-03-28	Brett et al.
2	24	4848476	1989-07-18	Deane et al.
4	25	5137097	1992-08-11	Fernandez
2	26	5197555	1993-03-30	Estes
2	27	5216917	1993-06-01	Detournay
2	28	5224560	1993-07-06	Fernandez
2	29	5305836	1994-04-01	Holbrook et al.
2	30	5311958	1994-05-17	Isbell et al.
2	31	5318136	1994-06-07	Rowsell et al.
2	32	5341890	1994-08-30	Cowthorne et al.
2	33	5370234	1994-12-06	Sommer, Jr. et al.
2	34	5372210	1994-12-13	Harrell
2	35	5394952	1995-03-07	Johns et al.
2	36	5415030	1995-05-16	Jogi et al.
2	37	5416697	1995-05-16	Goodman
2	38	5421423	1995-06-06	Huffstutler
2	39	5704436	1998-01-06	Smith et al.
2	40	5715899	1998-02-10	Liang et al.
2	41	5730234	1998-03-24	Putot
2	42	5767399	1998-06-01	Smith et al.
2	43	5794720	1998-08-18	Smith et al.
2	44	5812068	1998-09-22	Wisler et al.
2	45	5813480	1998-09-29	Zaleski, Jr. et al.


3	46	5813485	1998-09-29	Portwood
5	47	5839526	1998-11-24	Cisneros et al.
5	48	6002985	1999-12-14	Stephenson
5	49	6012015	2000-01-04	Tubel
5	50	6021377	2000-02-01	Dubinsky et al.
5	51	6044325	2000-03-28	Chakravarthy et al.
5	52	6057784	2000-05-02	Schaaf et al.
5	53	6095262	2000-08-01	Chen, Shilin
5	54	6109368	2000-09-29	Goldman et al.
5	55	6213225	2001-04-10	Chen
5	56	6241034	2001-06-01	Steinke et al.
5	57	6401839	2002-06-01	Chen, Shilin
5	58	6412577	2002-07-02	Chen, Shilin
5	59	6527068	2003-03-01	Singh et al.

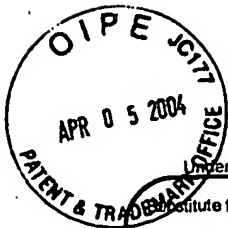
## Remarks

Note: Remarks are not for responding to an office action.

The accompanying form PTO-1449 lists one or more documents which may be considered material to the examination of this application. Applicant reserves the right to establish the patentability of the claimed invention over any of the listed documents should they be applied thereagainst as references, and/or to prove that some of these documents may not be prior art, may not be within an analogous field of art, and/or may not be enabling for the teachings they purport to offer. This statement should not be construed as a representation that an exhaustive search has been made, nor that more material information does not exist. The Examiner is specifically requested to conduct an independent and thorough review of the documents, and to form his own opinions as to the significance of those documents to patentability of the claimed inventions, regardless of any of the foregoing statements concerning the significance of the references. The foregoing statements are made in good faith, and in compliance with the duty of disclosure; but they cannot substitute for the Examiner's specialized expertise, nor are they intended to derogate from the Examiner's official duty to assess patentability. It is also respectfully noted that the submission of this material is not intended to displace the Examiner's professional ability and duty to search. Indeed, the Examiner is specifically requested not to rely on the materials submitted herewith, but to conduct a full and independent search. It is respectfully requested that the Examiner initial and return a copy of the enclosed PTO-1449, to indicate in the file of this patent application that the documents have been considered.

Signature

Examiner Name	Date
	11/22/06



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		First Named Inventor	Chen
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Sheet 1	of 4	Attorney Docket Number	SC-03-01

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Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
2	1	DEKUM MA, The Operational Mechanics of the Rock Bit, 1996, Petroleum Industry Press, Beijing, China.	
2	2	D. MA, D. ZHOU, & R. DENG, The Computer Simulation of the Interaction Between Roller Bit and Rock, 1995.	
2	3	SHILIN CHEN, Linear and Nonlinear Dynamics of Drillstrings, 1994-1995.	
2	4	D. MA & J.J. AZAR, Dynamics of Roller Cone Bits, 12/1985.	
2	5	D.K. MA & S.L. YANG, Kinematics of the Roller Cone Bit, 06/1985.	
2	6	D. MA & J.J. AZAR, A New Way to Characterize the Gouging-Scraping Action of Roller Cone Bits, 1989.	
2	7	Russian bit catalog listing items "Ill 190,5 T-TsV-1" and "111 109,5 TKZ-TsV" (date prior to 1997).	
2	8	L.E. HIBBS, JR., et al., Diamond Compact Cutter Studies for Geothermal Bit Design (Nov. 1978).	
2	9	M.C. SHEPPARD, et al., "Forces at the Teeth of a Drilling Rollercone Bit: Theory and Experiment", Proceedings: 1988 SPE Annual Technical Conference and Exhibition; Houston, TX,	
2		USA, Oct. 2-5, 1988, Vol. Delta, 1988, pp. 253-260 18042, XP002266080, Soc. Pet Eng AIME Pap SPE 1988 Publ by Soc of Petroleum Engineers of AIME, Richardson, TX	

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2

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4

## NON PATENT LITERATURE DOCUMENTS

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{	10	ADAM T. BOURGOYNE JR., et al., Applied Drilling Engineering, Society of Petroleum Engineers Textbook Series (1991).	
}	11	J.P. NGUYEN, Oil and Gas Field Development Techniques: Drilling (translation 1996, from French original 1993).	
}	12	T.M. WARREN et al., "Drag-Bit Performance Modeling", SPE Drill Eng. June 1989, Vol. 4, No. 2, pp. 119-127 15618, XP002266079.	
{	13	Making Hole, part of Rotary Drilling Series, edited by Charles Kirkley (1983).	
}	14	T.M. WARREN, "Factors Affecting Torque for A Roller Cone Bit", JPT J PET Technol Sept. 1984, Vol. 36, No. 10, pp. 1500-1508, XP002266078.	
{	15	Drilling Mud, part of Rotary Drilling Series, edited by Charles Kirkley (1984).	
{	16	H.G. BENSON, Rock Bit Design, Selection and Evaluation, presented at the spring meeting of the pacific coast district, API Division of Production, Los Angeles, May 1956.	
}	17	J.C. ESTES, Selecting the Property Rotary Rock Bit, JPT, Nov., 1971, pp. 1359-1367.	
}	18	WILSON C. CHIN, Wave Propagation in Petroleum Engineering (1994).	
{	19	SIKARSKIE et al., Penetration Problems in Rock Mechanics, ASME Rock Mechanics Symposium, 1973.	

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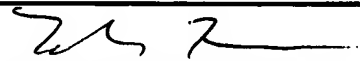
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{	20	DYKSTRA et al., Experimental Evaluations of Drill String Dynamics, SPE 28323, 1994.	
{	21	KENNER and ISBELL, Dynamic Analysis Reveals Stability of Roller Cone Rock Bits, SPE 28314, 1994.	
{	22	Brochure entitled "Twist & Shout", (SB2255, 1001), 4 pages.	
{	23	Plaintiff's Original Complaint for Patent Infringement and Jury Demand, filed September 6, 2002, in the U.S. District Court for the Eastern District of Texas, ✓	
{		Sherman Division, Civil Action No. 4-02CV269, Halliburton Energy Services, Inc. v. Smith International, Inc., 4 pages, 09/06/2002. ✓	
{	24	Answer and Counterclaim of Smith International, filed March 14, 2003, in the U.S. District Court for the Eastern District of Texas, Sherman Division, ✓	
{		Civil Action No. 4-02CV269, Halliburton Energy Services, Inc. v. Smith International, Inc., 6 pages, 03/14/2003. ✓	
{	25	Response of Plaintiff and Counterclaim Defendant to Defendant's Counterclaim of Declaratory Judgment, filed April 3, 2003, in the U.S. District Court for the Eastern	
{		District of Texas, Sherman Division, Civil Action No. 4-02CV269, Halliburton Energy Services, Inc. v. Smith International, Inc., 3 pages, 04/03/2003.	

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3		Sherman Division, Civil Action No. 4-02CV269, Halliburton Energy Services, Inc. v. Smith International, Inc., 8 pages, 10/09/2003.	
2	27	Memorandum Opinion of Judge Davis, signed February 13, 2004, in the U.S. District Court for the Eastern District of Texas, Sherman Division,	
1		Civil Action No. 4-02CV269, Halliburton Energy Services, Inc. v. Smith International, Inc., 37 pages (including fax coversheet), 02/19/2004.	
2	28	B.L. STEKLYANOV et al., Improving The Effectiveness of Drilling Tools, Information Summary, Central Institute for Scientific and Technical Information and Technical and	
7		Economic Research on Chemical and Petroleum Machine Building, Series KhM-3, Oil Industry Machine Building, BSSR Republic Scientific and Technical Library (1991).	

Examiner Signature		Date Considered	02/22/06
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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